

SIXPENCE

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FREQUENCIES FOR TELEVISION

A point which has lately been under a considerable amount of discussion is the choice of frequencies on which post war television services should operate. This involves some consideration of the factors affecting wave propagation at different frequencies. Of course there may be many matters of political or economic urgency which may outweigh technical considerations, but in this article we are only concerned with the latter.

LONG OR SHORT RANGE TELEVISION? .. In the first place, because of band width required for television there seems to be no question that the right place to work is on the ultra-high frequencies. Formerly this was thought to be a limitation as it seemed that range would be limited to the optical horizon. It has since been shown however that the effects of diffraction and of tropospheric refraction were such as to give quite economic ranges. The question still remains, however, as to the best frequency range to be used. We must still decide what range we require from a television service, that is, do we require long-distance television service using the ionosphere as a transmission medium, or should the service be relatively local. It appears at present, as though we must decide on the latter system, mainly due to the relative instability of the ionosphere as a transmission medium and the resulting distortion this would cause in a received picture.

We shall, then, in this article discard the idea of using the ionosphere for transmission and visualise the use of only "local service" transmitters.

FIRST CONSIDERATIONS .. If we wish to confine the service area of our television transmitter to a "local" region it is important that we work on frequencies which are above the MUF of the regular ionosphere layers at every season and time of the day, and at every epoch of the sunspot cycle. It might seem that we could suppress the upward-going radiation and use only a ground wave but we must remember that a wave taking off at a very small angle to the horizontal can reach the ionosphere and be returned to earth at a distant point. If we attempted to avoid this we should probably ruin reception within the true service area. If sufficiently high frequencies are used, however, this trouble is avoided and likewise

interference with similar television services situated some distance away. It is interesting to note that the British television transmissions in previous years were received in several places in the USA.

What then are the highest frequencies likely to be subject to ionosphere refraction at any time during the sunspot cycle? If we know this we have taken the first step towards the location of the ideal frequency bands for television.

EXPERIMENTAL EVIDENCE .. Firstly we have the experimental evidence already referred to, i.e. the reception of the London television signals in the U.S.A. This reception was only possible during winter months and it will be remembered that it is during winter that the daytime ionisation is highest. The conclusion is that during the summer months the ionisation of the refracting layers was never high enough to support propagation on these frequencies.

The pre-war television channels used for the British station situated at the Alexander Palace were 45 Mc/s for vision and 41.5 Mc/s for sound. The results of several years trial on these frequencies appear to indicate that 41.5 Mc/s would only be likely to be propagated by the ionosphere during the winter of years near the sunspot maximum, and that 45 Mc/s would be very near the extreme high limit for such propagation even at that time.

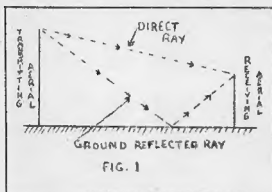
Data obtained from ionosphere measurements recorded at Washington appear to indicate that frequencies from 50 Mc/s upwards would not be propagated by the ionosphere even during winter day-time at the sunspot maximum, and to show that 50 Mc/s would be a fairly safe low limit to the frequency band suitable for television. It can be seen that this conclusion agrees fairly well with the experimental evidence.

By avoiding frequencies lower than 50 Mc/s, then, we could hope to avoid propagation to long distances by any of the regular ionosphere layers at any time. But there remains the phenomenon of sporadic E to be considered, i.e. the thin, highly ionised patches which sometimes appear within the E layer. These can, because of the relatively small height at which they lie, return waves to earth of frequency sometimes as high as 75 Mc/s, and these waves may be returned at distances up to 2000 kilometres with a single reflection. However, although occasional propagation out to 2000 kilometres would thus occur by way of this medium, it is unlikely that the sporadic E would be so widely distributed as to render possible a second hop. So that the chances of interfering with other television services beyond 2000 kilometres distant on a frequency of 50 Mc/s appear to be extremely remote.

REFRACTION OF THE SPACE WAVE .. We may now examine another interesting matter in connection with the propagation of the ultra high frequencies, which will be of some importance in television. It has already been said that the range of a television station is not limited to the optical horizon but due to diffraction etc., it is extended considerably farther. But

it has been found that the field strength beyond the optical horizon is greater than can be attributed to the effects of diffraction alone, and furthermore that the signals at these distances are subject to fading. This points to the presence of a refracted component in the received field, and this is indeed the case. The refraction is not due to any ionisation in the air however, but occurs in the troposphere where air density is comparatively high and free electrons cannot exist for any length of time. There are two distinct cases in which we may have the radiated energy returned from within the troposphere--a normal and an abnormal condition.

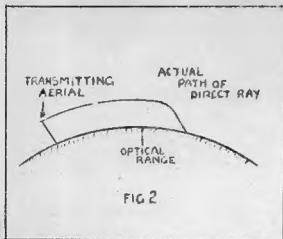
To take the first case first. It should be appreciated that on ultra-high frequencies the actual "surface" wave, i.e. the wave that travels along the ground itself, is not of much importance. That produces most of the received field is that part of the ground wave known as the "space" wave. This consists of two components .. a directly received ray and a ray received by reflection from the ground. The most important component is the directly received ray. These factors are illustrated in Fig. 1.



The directly received ray is shown as travelling in a straight line between the two aerials. Under such conditions it would soon be intercepted by the bulge in the earth's surface due to its curvature, and it will, therefore, not affect any receiving aerial which is beyond the optical horizon. But those aerials do pick up energy from the direct ray, and they are able to do so because the ray can travel, not in a straight line, but in a continuously curving

path. This is brought about by the fact that the refractive index of the troposphere is not constant, but decreases with increasing height. This is due to the normal decrease of atmospheric pressure of temperature and of water vapour content with height.

So the rays which leave the transmitting aerial at small angles to the horizontal are subject to constant refraction and travel in the form of an arc, so that they can reach the earth again at points beyond the line of sight. Fig. 2 illustrates the sort of conditions under which the direct ray may travel. The top of the trajectory made by such a ray may vary between a few hundreds and a few thousands of feet, depending on the distance from the transmitter at which it returns to earth, but it would appear that in the stratosphere (33,000 ft) such refraction would be insufficient to return the ray to earth.



The extension of the range of a station by the effects is fortunate provided it does not introduce any ill effects as well. Experience has shown that on frequencies of from 40 to 50 Mc/s a considerable amount of refraction of the direct ray does take place, giving good reception of signals up to about 1½ times the optical range. As to disadvantages, it will be appreciated that the refraction will vary according to conditions and will consequently cause some fading. It is of a slow type, however, and generally speaking it is quite tolerable on a television signal.

ATMOSPHERIC DISCONTINUITIES .. The second case of return of energy from the troposphere...the abnormal condition--it is brought about by the presence of atmospheric discontinuities, eg. unusual temperature and humidity conditions. Such discontinuities give rise to reflection of waves of ultra high frequency, and rays which leave the aerial at relatively large angles to the horizontal may be returned to earth by this means. The discontinuities usually occur at small heights above the ground and may lead to a fairly severe form of fast fading, thus causing distortion to the received picture.

CONCLUSION ... It would seem then that frequencies from 50 Mc/s upwards would be most suitable for television services and that reception at distances considerable beyond the optical range could be expected. Of course, the upper limit suggested would be greatly exceeded if it were decided to use a system of transmission requiring a very much wider frequency band than that of the pre-war standard.

Finally, the upper limit would probably also be affected by another consideration--the reflection of waves from large buildings and hills. In built-up areas waves may be reflected from large buildings so as to produce a number of different paths between the transmitter and the receiver and in consequence some distortion may be caused. This kind of distortion is likely to increase with frequency, because the shorter the wavelength, the smaller is the surface that acts as an efficient reflector.

From an article in "Wireless World."
.....000.....

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CHINA AMATEUR RADIO LEAGUE

ANNUAL MEETING.

Members of the China Amateur Radio League gathered at the auditorium of the Central Headquarters of the San Min Chu I Youth Corps at 10 a.m. on May 5th of this year for the opening ceremony of the fifth annual meeting of the Association. The branches of the said League held meetings in different places of China simultaneously and communicated from one another through radio waves.

Correspondence, photos as well as radio sets of amateur radio circles in various countries were exhibited at the same time. Mr. Chu Ge Tsing, the vice-president, reported the general condition of the League. After that Mr. Zee Yu-ling, one of the members, read his thesis on "Studies on Frequency Modulation." Both speech and report had been broadcast to the various branches.

An opening address made by Dr. Hsu Un Tsong, vice minister of communications, took place at 3 p.m. of the same date. He being the president of the League, declared that the League has three principal objectives - (1) to train radio personnel, (2) to promote science contributory to national defence, and (3) to cultivate friendship with other nations by radio. Followed by a speech delivered by Mr. Chu Ge Tsing who suggested (1) to start a publication (2) to open a training class where practical lessons will be taught. Other speakers included Prof. Fred O. McMillen, Messrs. Glen Alkins and John Sijder, radio experts of the American Embassy, Mr. Hu Shu-hua, Deputy Secretary General of the Central Headquarter of the San Min Chu I Youth Corps.

The demonstration of television was taken place at 5 p.m. Mr. George Bailey, president of the American Amateur Radio League, and Mr. R. B. Warner from Washington, KVI broadcast special programs. Although we could not hear clearly due to the disturbances in the air, we appreciate the good will of our friends just the same. A radio programme then was given by the branches of the League at Lanchow, Kweichow and other cities.

After a few days Mr. Hsu Un Tsong, the president of the League broadcast through the International Radio Station of the Central Government of China to the president of the ARRL of U.S.A. to express gratitude for his kindness.

...o0o...

Readers of AMATEUR RADIO will notice that from last month's issue new advertisements have appeared. The goodwill gesture of the three firms, Messrs. Cliff and Bunting, Kingsley Radio Pty. Ltd., and J. E. McGrath will ensure the future publication of the Magazine. Remember these advertisers when the time comes to think about rebuilding your Ham Station.

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AMATEUR TEST EQUIPMENT REQUIREMENTS

Charles C. Guin .. VK3WO

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In the two previous months it will be seen that a means is available to progressively check components before assembling into the apparatus under construction, and then, when this is completed, to give a rough check as to its operation.

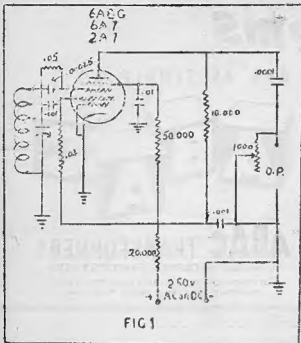
If a receiver was the main bone of contention then the multi-vibrator would not be sufficient to 'line up', so of course the obvious next requirement is a signal which is capable of being varied in intensity and also of being set at a frequency and left there.

Many oscillators and frequency meters have been described from time to time in most of the radio publications. One that seems to be coming to and fore is the TRANSITRON OSCILLATOR.

This type of oscillator has been found very stable and because of the coil being 'straight' (no taps) it lends itself to easy construction. Once again we can get away with using one tube only although a buffer stage would be advisable in order to isolate the output of the oscillator, at the same time providing a means of varying the depth of modulation.

Following is a circuit in Fig. 1 which should need no explanation beyond the fact that the accuracy to which it will be expected to

attain is of course governed by the quality of the parts used and also the layout and construction of the finished job.



The transitron oscillator works on the simple principle of producing negative resistance between two grid circuits containing the frequency determining constants and is a very big improvement on the once renowned dynatron oscillator which gave such good results.

For the transitron, figures have been quoted to show that for a change of 25% in plate voltage, the frequency of oscillation will change only a few parts in a million. Although the circuit given here shows it for use as an RF oscillator, the transitron can be used for quite a number of jobs.

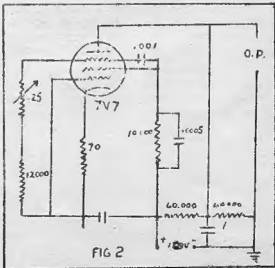
- (1) Producing Saw Tooth Wave form isosceles to other saw tooth shapes.
- (2) Sine Waves
- (3) Square Waves
- (5) Selective Audio Amplifier.

(4) Pulse Waves (developed from 3)

The actual frequency range on audio is of course determined by the circuit constants, and, to a certain extent the characteristics of the individual tubes used. This range is from approximately a few cycles a second to 0.5 megacycles.

Naturally such claims must be regarded with care as also the circuit design. Operating over such a wide range naturally with one tube will cause serious attenuation of output and a future article will be prepared dealing with this subject.

Fig. 2 gives the circuit of a practical saw tooth oscillator for production of waves between 7 and 26 KC.



(Continued on page 16)

THE TECHNICAL LIBRARY

This feature has been on the shelf for some time now, owing to lack of space, but the rush being over we are now able to resume.

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MATHEMATICS OF RADIO COMMUNICATIONS...T.J.Wang (New York) 1944.
371 pages 25/6

A very interesting book and one which should have a definite place on the Technical Bookshelf. It is divided into eight sections under the following headings: - Fundamental Processes, Laboratory Practice, Basic Circuit Maths, Introductory Maths of AC, Vector Methods, Miscellaneous Useful Communications Tools and Concepts, Advanced Studies, and Graphs for Reference.

The whole subject is treated thoroughly, from simple addition to differential equations and Fourier Series, and each operation is explained in such a way as to suggest its applications to communications engineering.

The first five sections deal with such topics as Arithmetical Operations, Simple Equations, Graphs, Algebraic Operations, Quadratic and Simultaneous Equations, Trig Functions, Radian Measure, Solutions of Triangles, Vectors and Rotating Vectors.

The initial part of the subject before passing to Advanced Studies is completed by the section headed Miscellaneous Useful Communication Tools and Concepts which covers Logarithms, the Slide Rule, Natural Logarithms and Trig Identities.

Under the General heading of Advanced Studies are included such matters as Power Functions and Exponential Functions, Differentiation and Derivatives, Empirical Formulas, Expansions, Integration and Fourier Series.

Mr. Wang winds up a splendid book with the final section covering various reference graphs including those in both rectangular and polar co-ordinates and nomographs. This is a book which can be earnestly recommended both to those who are mathematically inclined and to those who would like to be and are not sure where to start.

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Some time ago, in our first review, we devoted considerable space to the Radio Amateurs Handbook, published by the RSGS. A supplement to the Handbook is now available under the title of:-

RADIO HANDBOOK SUPPLEMENT (148 pages) 4/8

This little book contains most of the odd items which are not usually found in Amateurs Handbooks, such as Radio Maths., Circuit Maths, Radio MP, P.F. Plotting, Emergency Operation of Radio Equipment, and various tables of Logs and Antilogs, Trig Functions and Data and Formulas. Solutions to the various problems included in the text are printed in the final section. There are also chapters on Radio Fundamentals & the CR scope & a chap. entitled "A Service Operators Aide Memoir" which despite its highbrow title is perhaps the most interesting in the book, describing how such things as carbon resistors may be repaired in the field and how operating conditions & characteristics of enemy gear including tubes may be determined with the simplest test equipment. Don't let that title put you off, the rest of the book is in ENGLISH.

SLOWLY ATTS and PORAGE CAPS

November ..nearly Christmas...and just time for you all to send in a bumper list of notes for our December and New Year Issues...so, all of you, from the laziest "down birds" .. four to six lines from every ham on service. Now, don't believe for a moment any single one of you that nobody is interested where you are...every other ham you have worked with is perhaps often wondering what has happened to you. Or even more likely...just imagine that you are the only ham in some godforsaken area...because his lot is as bad as yours - you haven't had leave in ages. But if only there was a ham about, but no, you are the only one within hundreds of miles...All, as has already happened, not far at all from you is yet another VI or a VII as all your ideas, etc. etc. Both of you want Amateur Radio, but neither has as yet sent in their proposals. The moral is ... send in some notes.

Horrie "Morris VK2WT", Group 493 RAAP Pacific, still continues upwards in rank and now is a Wing Commander .. very 2b, om. Believe it or not Horrie wants "AG" up his bay... says the S2 is frightful. Well, well, I thought it did nothing but rain, but But they have stood up where he is and that to anybody in Sydney is reason enough for going there, after a week's strike and not even a shop.

Horrie's right hand man is ex 7LA "back in the '20s...and still as much of a ham at heart as ever. Basil also 97...Flying Officer to you, is also in 193, but just about due for a trip South.. after a very lengthy spell up North. A new arrival up there is "Lt. Ross Harris VK5W" and also "O Johnson VK3YB". Another ham in the team is a "V12 Jack "vana 20". So they can just about hold a hamfest when they take in all the "us" that Horrie says are up that way.

Now about the third time VK2BMY LS 1700 Reg Morgan HAS Gossnook turns in some notes. Considering they always have to come just about half way round the world this had appeal to me as an example of "a great help" to the column. Last time he was in the Med., but now he is recovering from overwork after an appendix op., and doing the job in style in East Africa. He mentions meeting Lincoln King ZS2SZ who wants VI for his "AG". Reg says he was made very welcome and will always have happy memories of the true ham spirit shown him there. Another S. African ham he met was ZS2BJ with whom he had a long race also. So it looks as if a ham is a ham, no matter how far from home, and always more than welcome at the home of almost every other ham that pounces a key. VK2AB wants his 73s sent to the "Reddened Sailor", Syd Clark, and also to Ken Bracken 2W, ...says he's the family Ken .. he has one jnr. op now.

Had a visit here from "MAYO, Stan Pierce. Maybe some of you Newcastle hams will see something of him as his ship was damaged in a collision and will be up there while being repaired. Stan has been over to England a few times and has good stories to tell. Any of you that can contact him will have a good night. He is a Lt.

in Merchant Marine (served time in Navy before the War) and 2nd in charge of the engine room sails from Atona Beach, Florida.

A visitor at the last VLA Meeting in Sydney was Jim Cook VK3 C who no longer needs to know how many hams were near him in Darwin as he has at long last been moved Southward after being there since the blitz. "Amateur Radio" has been of assistance to him. Apart from the number of hams OUR COLLEGE was able to tell him who were near him, he found it useful once in another way. Jim was having a sojourn in hospital and had struck up a friendship with the chap in the next bed. One day Jim's "A.R." arrived and he was lying reading it. Suddenly the chap in the next bed said .. "I say, are you a HAM????... so am I...." and the rest of the story is "the same old tale" .. but Jim is sold on the usefulness of our HAM Magazine.

Yeoman of Signals Jack Lumsaine VK2JVO is on leave in VIS during the refitting of a certain ship in a certain port" .. and I reckon that sentence befits the "silent service," H1!

Wt. Sergeant Cec. Light in England is now flying Sterling bombers. Cec says he likes English Planes and Radio equipment in preference to American, and including "Hammarlund & National" ...and that's saying something ... and how!!

Sgt. Harry Castles Group 160 RAAF Darwin is (or was) way out in the never never and letters would be appreciated. He is now doing maintenance work and looks like resting in one place for a while after much moving round. He sends B3's to Ray Carter and reminds him of that first course together. H1!

Fred Luback VK2JW comes to light from Townsville...he wants to know what has happened to the lads at Canberra??? Fred has just completed a nine tube super...now Will did he get those parts... certainly not in Sydney.

Looking through my notes I find one from V/O Jack Evans 2CK mentioned by Morris, and boy oh boy, listen to this bit...Gordon Williamson VK3C captures a Jap Radio Station intact, but had to put all the equipment into a pool of examination with the promise that after examination will be forwarded to our homes...now take a breath all ye hams...6 receivers, FOUR 600 watt transmitters, 100W 2 transmitters and much beautiful equipment,"...well, well ... I can only hope none of those examiners are hams, oms. H1!

P/O Mel. Syd Clark is now in Madag and still meeting hams...is mostly. He says W6TP is back in U.G. again after his one leave. This ship has just about circumnavigated Australia before going home and his VK ham total must be pretty large. Syd's latest relaxation is sailing and he reports having "graduated" from Lakeland to canvas sail boat, H1!

V/O Con Bischoff 2LZ Group 468 RAAF Townsville (U.B. Fred) is becoming interested in telescopes and stars, as his relaxation. He says he expects AA to arrive in the near future to take over

NEW SOUTH WALLS DIVISION

The October General Meeting was held at V.M.C.A. Buildings and the Chairman in declaring the Meeting open extended a welcome to Fl. Sgt. Ern Cook VK3LC.

Members were given a resume of Civil Defence activities and a 11 present bore of the opinion that at last the value of the Amateur was realised.

Congratulations to our new Secretary upon becoming a father. ZIO's wife recently presented him with a son and already Gene, is looking forward to the day when Father and Son will be working the rig. In the meantime he had better learn all he can about "V" beams and folded airways.

The question of entertaining British Amateurs when they arrive was discussed at some length and an appeal was made for volunteers willing to help. According to press reports it can be confidently expected that we will have an influx of British troops very soon and naturally there will be a number of hams with them. Any VK2 experimenter willing to assist in their entertainment is asked to contact either the Chairman or the Secretary.

Next month is December. In December 1943 a "pound night" under the direction of "Russ" Miller took the place of the Monthly General Meeting and was voted 100% successful. Council are considering repeating this function and would like to have the views of all city and suburban members.

Members were informed that the Magazine Committee had been successful in obtaining sufficient advertising to make the magazine a paying proposition, thus relieving the burden on both Divisions. It was decided that a letter be written congratulating them upon their efforts.

Upon conclusion of General Business a very interesting talk was given by Mr. Alex Borlan on-Qt upon his experiences in radio prior to 1914 and during the last war. Alex served with No. 1 A.M.S. in Mesopotamia during the last war and his experiences were very interesting particularly with reference to "pack sets." This talk was accompanied by a display of photographs taken by the speaker. Upon conclusion a very hearty vote of thanks was accorded the speaker.

A letter from Federal Headquarters giving a resume of Experimental activities over the past six months was discussed at some length and whilst commending F.E.O. for their work it was felt that it could have been made much easier if just a little more co-operation had been received from some States.

Fl. Sgt. Ern Cook gave a brief description of his travels with the R.A.A.F. and was pleased to meet ZYC and express to him his appreciation of "slouch hats and Forage Caps."

The next meeting of the Division will be held on Thursday 16th November, and an invitation is extended to any amateur to be in attendance.

CIVIL DEFENCE IN NEW SOUTH WALES

BUSINESS - During the past few weeks considerable progress has been made with the organisation of this All Amateur Network. The most important development was the decision made by the B.A.G. regarding the location of the first three Nets. This honor has fallen to Young, Lubbo and Wagga. The frequency to be used will be 3.1 mc. This has been made possible by the generous action of the Department of H.A.S. who agreed to share this frequency.

Circuit diagrams have been drawn up and these have been forwarded to the towns concerned. As each month passes, more and more towns will be brought into the scheme, so if you don't happen to live in Young, Lubbo or Wagga don't be disappointed, your turn will come.

Incidentally quite a deal of publicity has been accorded the scheme over the National Stations as it was mentioned during the evening news session several times and the local press has also given it a boost.

As far as organisation is concerned each town will be an entirely independent unit under the supervision of a Radio Section Leader. The Section Leader will be responsible for the maintenance of the Radio equipment and will take his orders from the Captain of the Bushfire Brigade. Each town will have at least one Radio Unit and each Unit will comprise one Mobile Station to act as the Forward Base and three Portable Stations to act as Advance Parties. The Mobile Station will be mounted in a Truck or some other form of transport and will get as close to the fire as facilities permit. It will then be the duty of the Advance Party to get as close to the seat of the fire as possible and set up communication with the Forward Base.

From the foregoing it is quite evident that once operating personnel and equipment are more easily obtainable, the scheme can be very easily expanded.

Mr. M. P. Jackson VK2MB has been appointed Technical Officer and all enquiries re equipment should be addressed to him at Bantable Street, Croydon.

Remember chaps if you are not already participating in the scheme, your turn will come.

EMERGENCY COMMUNICATION NETWORK. This Net continues to function twice a month and the quick and accurate manner in which messages are handled reflects great credit on the operators concerned. Recent visitors to Central were astounded at the manner that outlying stations handled traffic, and when informed that the work was being performed by amateurs, their surprise was manifest.

In recent weeks several changes have been made at Central, the most important being a change in the PA. Previously a pair of 808's were used, but these have gone the way of all tubes, and now a single 913 is feeding the antenna. Of course 2EI never ever did believe in "starving the antenna"!

SYMBY HARBOR PATROL. Recently members of the S.H.P. were instructed to hold themselves in readiness for duty on any night of a certain week. Certain events detrimental to the Nation's war effort were taking place on the waterfront and it was decided that a determined effort be made to eradicate this evil.

The night eventually arrived and "Sea Horse" was a hive of activity. As each launch pulled into the jetty, supplies of fuel and oil were taken on board, and when this operation was completed, the Radio equipment was tested out and the boat stood by for orders from the Wlagskip.

Soon all craft were ready to proceed to their allotted stations and at 9.23 p.m. "Port" notified Central that she was leaving the Depot. This was quickly followed by the same message from "Moonbi" and in a very short time all boats were on their way to their various stations.

Then for the next few hours the Patrol went about its task of checking various craft on the Harbor and messages were exchanged between ships and Control at a fairly high rate. These told of the highly efficient manner in which the boats were doing their work.

At 11.23 p.m. the following message came through - "Notify G.O. gunfire. Three shots fired from stern of ship moored at ... What are his instructions?" Following on receipt of this message things began to happen. The Harbor became a hive of activity and messages began to flow in an unending stream and in a very short time Speedboats belonging to an Allied Navy were dashing to the spot indicated, followed very soon after by the Police Patrol Launch.

In the meantime other craft continued the work of checking other boats moving about the Harbor and eventually the incident previously reported was cleared up.

The above is a brief account of a Security Patrol carried out by the S.H.P. and was the real thing and not just an exercise. For reasons of security it is not possible to go into more detail, but needless to say communication played a vital part and the amateurs assisting had an exciting but never-the-less exciting night. More amateurs are wanted to act as operators and further information may be obtained from "Al Ryan VNEPI, PX3306 or Ray "Lingott L13763.

A week after the above incidents, a cruise was made to the upper reaches of Middle Harbor in order to ascertain signal strengths from various points. This was a most interesting night and quite a deal of valuable information was collected.

So chaps, here is an opportunity to participate in Civil Defence work of real value to the nation, both in peace and war.

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VICTORIAN DIVISION

As a result of the discussion at the last general meeting in reference to the Post War Amateur Radio Activities, Council at its last meeting spent some time in discussing the matter, and felt that the time was ripe to make some definite steps to draw up the ideas of this Division, so that they may be passed on to Federal Headquarters, who will when all relevant information on the subject are to hand, draw up the final plan for the Post War Amateur Radio Activities. Individual members can help considerably by forwarding their ideas to their respective Divisions. To facilitate this Division's planning Council appointed three members to act as a sub-committee, whose duties will be to present ideas for discussion and to note the discussion thus filling in the gaps and incorporating everyone's ideas. This committee comprises of Messrs. A. H. Glyne VK3VX; R. Marriott VK3SI and J. K. Ridgway.

The Division's Membership Drive still continues to be a success and this is most gratifying both to Council and to the Membership Co-Secretaries. New members admitted at the last Council Meeting are:- Sgt. J. A. Gushik VK3MO, South Melbourne; S/Sgt. W.S. Manham VK3BF, Essendon; Cpl. P. R. Gibson, VK3GX Camberwell; P/O R.M. Juen VK3WI East St. Kilda; S/Sgt M. W. Walker VK3WV, Camberwell; J. P. Sydnor VK3JX Ha Milton; A. A. Bowley VK3AM Ashburton; E. Hale VK3EB Ballarat; R. Russell VK3BO Coburg; R. Bowling VK3X North Fitzroy; W.A. Brownbill VK3BG Geelong; E.S.J. Phillips VK3JU 8th; Yarra, T. M. Palmer, Colac. It is proposed that as new members are admitted to membership their names will be published in this magazine.

Members of this Division and in fact all readers of the Magazine will be pleased to hear that the former Chief Inspector of Wireless, Mr. J. J. Malone, has been appointed to the position of Deputy Chief of Posts and Telegraphs in New South Wales.

The Laboratory Committee still continue to meet every Tuesday night, with exception of the Meeting Night and Council Meeting. Their activities of late have been mainly concerned with putting the Receiver back into operation. Unfortunately a number of tubes are missing, and sundry tubes were borrowed in order to find out how it functions. From reports, receiving conditions at the Rooms are at the present excellent. This is accounted for by the lack of moon signs about the city which were in pre-war days the main source of noise.

The next meeting of the Division will be on Tuesday November 7th. The December meeting will be on Tuesday, 5th December. At both meetings Mr. C. C. Quin VK3VO will continue his series of lectures on Amateur Test Equipment. He has hopes of obtaining the use of a Cathode Ray Oscilloscope to use in conjunction with some of the test equipment. This demonstration should prove very interesting.

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THE WIRELESS INSTITUTE OF AUSTRALIA



Divisions of the Wireless Institute of Australia exist in every State of the Commonwealth. The activities of these Divisions are co-ordinated by Federal Headquarters Division, the location of which is determined from time to time by ballot.

Present location of F.H.Q. :— New South Wales

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VICTORIAN DIVISION

191 QUEEN ST., MELBOURNE

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**First Tuesday in each month at W.I.A. Rooms,
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Visiting Overseas and Interstate Amateurs are welcome at meetings and they are invited to communicate with the Membership Secretaries :

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NEW SOUTH WALES DIVISION

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The N.S.W. Division meets on the third Thursday of each month at Y.M.C.A. Buildings, Pitt St., Sydney and an invitation is accorded to all Amateurs to attend. Overseas and Interstate Amateurs who are unable to attend are asked to phone the Secretary at FX3305.

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